

REMARKS

Reconsideration of the present application is respectfully requested.

Applicant has amended the specification to correct minor errors. Applicant respectfully asserts that no new matter has been added; changes were made only to correct inconsistencies within the specification and provide a clearer description of Applicant's disclosed invention.

Claims 4 and 5 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Claims 4 and 5 have therefore been amended and are no longer in multiple dependent format. Applicant respectfully requests that the Examiner's objection be withdrawn and that claims 4 and 5 be examined on the merits.

Claims 1 and 2 are objected to for containing informalities. Applicant has amended these claims to remove the informalities noted by the Examiner.

Claims 1-3 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,917,428 to Discenzo et al. (hereinafter referred to as "Discenzo"), in view of U.S. Patent No. 6,188,154 B1 to Luedtke et al. ("Luedtke"). Applicant respectfully traverses this rejection, for the following reasons.

Independent claims 1 and 6 have been amended to include features not disclosed in either Discenzo or Luedtke. Amended claim 1 recites:

a determining means that determines an occurrence of a short of at least one of the plurality of the motor coils by determining that the detected voltage or current obtained by the detecting means *exhibits a larger fluctuation range than the respective pre-stored voltage or current*, said pre-stored voltage or current representative of that supplied from the external power source during a normal state.

[emphasis added]

The present invention utilizes a current or voltage fluctuation range to produce data that is more accurate than, for example, voltage or current RMS data as disclosed in Discenzo at Col. 7, lines 7-14. In the example shown in Fig. 3b of the present application, the fluctuation range of the detected current would have a larger magnitude with respect to a pre-stored current than would the corresponding RMS value of the detected current, assuming that current measuring instruments of like precision were used. Therefore, the recited determining means is more capable of accurately detecting the occurrence of a short in one of the coils 3a – 3l than would a comparable determining means that compared an RMS current value with the pre-stored current value.

Discenzo discloses a motor with a set of motor current sensors 88 and a set of motor voltage sensors 90 used for motor diagnostics purposes. As shown on column 7, lines 11-14, Discenzo uses calculated RMS values for the voltage and current parameters that are then compared to “fault threshold values for the same” to monitor the condition of the motor. Discenzo does not, however, disclose the specific utilization of fluctuation in voltage and current (as shown in Figs. 3A and 3B of the present Application) with respect to pre-stored values.

Luedtke describes a motor with a thermal safety feature to provide protection from thermal overloading. Even assuming *arguendo* that an electric motor with the thermal safety feature as disclosed by Luedtke could be combined with the integrated motor and diagnostic apparatus disclosed by Discenzo, the combination would not teach the use of fluctuation in current or voltage in the determining of a short of one of the motor coils.

Therefore, in view of the amendments made to claim 1, Applicant respectfully requests that the rejection of claim 1 be withdrawn.

As claims 2 and 3 depend from claim 1, the rejection to claims 2 and 3 should be withdrawn for the above-mentioned reasons with respect to claim 1.

In addition, amended claim 2 further defines the use of fluctuation in current or voltage as recited in claim 1. Specifically, amended claim 2 recites that the determining means "determines the short based on ripple variations of the current or voltage supplied to the motor from the external power source." As Discenzo and Luedtke fail to disclose the use of a fluctuation in current or voltage as recited in claim 1 for the above-mentioned reasons and furthermore do not suggest that the fluctuations are ripple variations caused by an external power source, Applicant respectfully asserts that claim 2 is in condition for allowance.

Amended claim 6 recites:

an indication device responsive to said determining device that indicates said short exists when the detected current exhibits a larger fluctuation range than the respective pre-stored current.

As noted above, neither Discenzo nor Luedtke discloses use of a fluctuation range in a detected current to determine if a short has occurred in one of the motor coils. Applicant respectfully requests that the rejection to claim 6 be withdrawn for the above-mentioned reasons with respect to claim 1.

New claims 8, 9, and 10 have been added to recite additional features of the present invention related to a motor coil shorting apparatus. Support for new claim 8 can be found on page 2, lines 12-26, page 3, lines 20-25, and page 6, line 21 through page 7, line 5. Support for new claim 9 can be found on page 6, lines 4-17 and page 7, lines 5-18. Support for new claim 10 is found on page 3, line 23 through page 4, line 3, page 5, lines 5-16, page 5 lines 20 through page 6, line 8, page 8, lines 12-18, page 9, lines 24-26 and Figs. 1-4. Examination on the merits of new claims 8, 9, and 10 is respectfully requested.

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In view of the above amendments and remarks, the present application is now believed to be in condition for allowance. A prompt notice to that effect is respectfully requested.

Please charge any unforeseen fees to Deposit Account No. 50-1147.

Respectfully submitted,



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